

Name: \_\_\_\_\_

Period: \_\_\_\_\_

## ALGEBRA 1 FINAL EXAM REVIEW

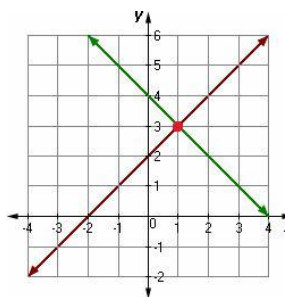
**DIRECTIONS:** Write the letter of the correct answer on the answer sheet provided.

1. Evaluate:  $-5x^2 - x + 3$ , when  $x = 2$
2. Simplify:  $3^2 \cdot 2 + |2 + (-4^2)|$
3. Solve:  $\frac{1}{2}(x + 4) - (-1) = 2x - 6$
4. Solve  $-12m - 12 + 16m = -10 + 4m - 2$ . Describe the solution.
5. Solve:  $\frac{3x + 9}{30} = \frac{3}{5}$
6. What is the y-intercept of  $4x = -8 + y$ ?
7. Which best describes the line passing through the points  $(-3, 4)$  and  $(5, 8)$ ?  
**A.** Rises left to right    **B.** Falls left to right    **C.** Horizontal line    **D.** Vertical line
8. Which best describes the lines:  
 $6y = 30x + 18$   
 $y = 5x - 12$   
**A.** Intersecting    **B.** Parallel    **C.** Perpendicular    **D.** Same line
9. What is the slope of the line:  $y = 9$

10. Write the equation in slope-intercept form of the line passing through (2, -14) and (-6, 10).

11. Graph the solution of:  $6x - 15 \geq 9x - 12$

12. What is the solution to this system of equations?



13. Simplify:  $(2x^2 + 7xy - 8y) - (4xy + 3y)$

14. Simplify:  $-4x(6x^2 - 2x - 4)$

15. Simplify:  $(6x + 4) - (x - 8)$

16. Factor:  $12x^6 - 84x^5$

17. Factor:  $16x^2 - 25$

18. Factor:  $x^2 + 6x - 16$

19. Simplify:  $x^4 \cdot x^8$

20. Simplify:  $\frac{x^4}{x^{17}}$

21. Simplify:  $2x^3y^5 \cdot 3x^2y^4$

22. Simplify:  $\frac{8x^{-5}y^7}{24x^4y^{-9}}$

23. Simplify:  $-2a^7b^3 \cdot 10ab^{-5}$

24. Simplify:  $\frac{-35x^{12}y^7}{-7x^9y^8}$

25. Simplify:  $\sqrt{360}$

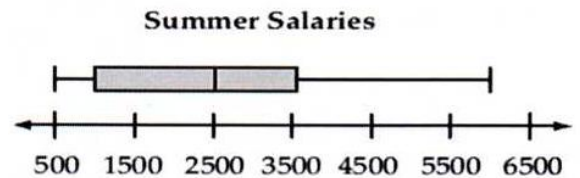
26. A bag has 4 blue marbles and 8 red marbles. What is the probability of selecting a red marble, setting it aside, and then selecting another red marble?

27. The table at right shows how each student on an academic team has performed in competitions this year. Which student is LEAST likely to answer a question correctly?

Academic Team Performance

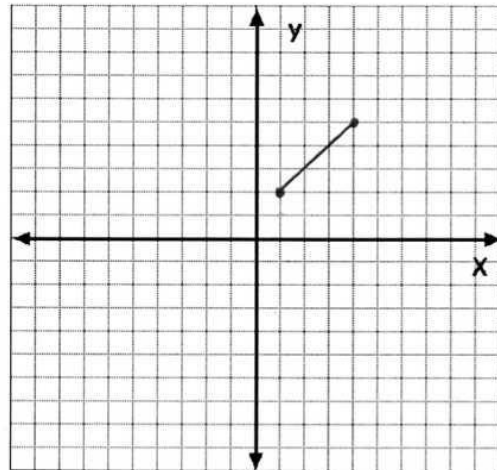
Student	Number of Questions Attempted	Number of Correct Responses
Ben	420	212
Carol	440	176
Jude	210	168
Kate	310	217

28. The box-and-whisker plot at right shows the summer salaries of teenagers working in a restaurant. Based on the box-and-whisker plot, decide which whether each statement is **True** or **False**.



- \_\_\_\_\_ The least number of salaries are between \$500 and \$1000.
- \_\_\_\_\_ The median salary is \$2500.
- \_\_\_\_\_ There are less teenagers who make over \$2500 than teenagers who make less than \$2500.
- \_\_\_\_\_ About 50% the teenagers earn between \$500 and \$2500.
- \_\_\_\_\_ The interquartile range is between \$1000 and \$3500.
- \_\_\_\_\_ The highest reported salary is \$6500.

29. Identify the domain and range of the function.



**PART 2:** Complete the following problems. Show your work. (4 pts. each).

**30.** You are planning a road trip with your friends. Your goal is to reach a final destination point, which is 2500 miles away from your starting point. Each day you plan to drive 350 miles.

**a.** Complete the table below.

DAY	MILES COMPLETED
1	
2	
3	
4	
5	
6	
7	

**b.** Create a linear function that represents how far you travel after each day of driving.

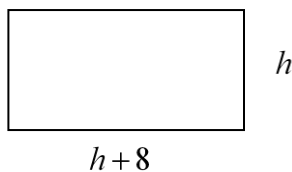
**c.** On which day would you reach your destination?

**d.** How many days would it take you to travel 1900 miles?

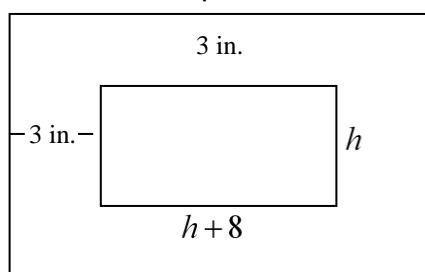
**31.** Factor completely:  $4x^3 - 20x^2 + 24x$

FINAL ANSWER: \_\_\_\_\_

32. James creates a painting on a rectangular canvas, with a width that is eight inches longer than the height, as shown in the diagram below.



- a. Write a polynomial expression that represents the area of the canvas.
- b. James adds a 3 inch wide frame around all sides of the canvas. Write a polynomial expression, in simplified form, that represents the total area of the canvas and frame.



- c. Write a polynomial expression that represents the perimeter of the outside of the frame.

33. Solve:  $x = 2y - 8$   
 $4x + 6y = 24$

. There is no partial credit on this problem, so remember to check your solution.

SOLUTION: \_\_\_\_\_

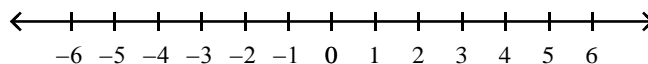
- 34.** A catering hall placed two orders with the bakery. The first order was for 24 cupcakes and 2 pies; it totaled \$96. The second order was for 32 cupcakes and 3 pies; it totaled \$135. How much do the cupcakes and pies cost individually?

- 35.** Solve and graph on the number line:

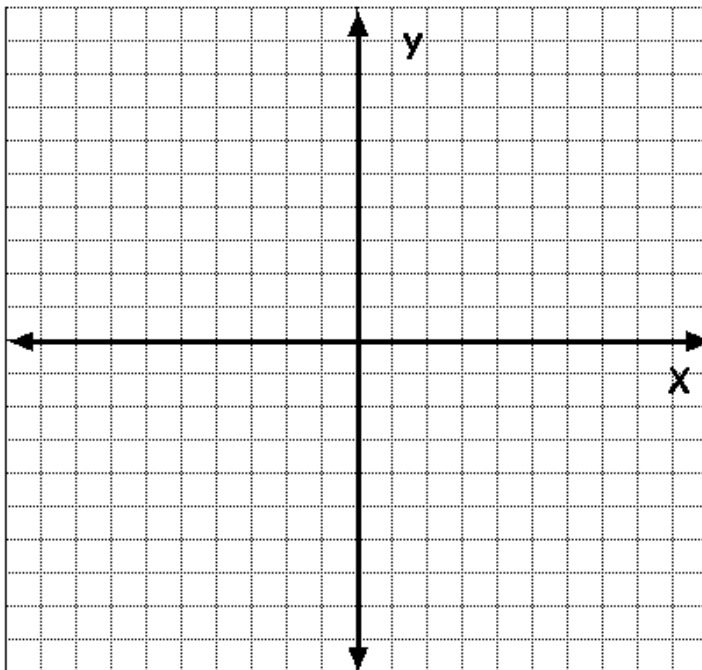
$$-18 \leq 12x - 30 < 42$$

- a.** Solve the compound inequality.

- b.** Graph your solution on the number line provided below.



**36.** Graph the inequality:  $y > -3x - 4$  on the coordinate plane below. Show all your work and explain why you did each step.



- a. Explain how you could use your graph from Part A to determine if the ordered pair  $(2, -1)$  is a solution of the inequality.
- b. Determine, using algebra, if the ordered pair  $(-3, 6)$  is a solution of the inequality.